

## ABSTRACT

Methods and apparatus are provided for a system for high speed data transmission. The apparatus is a light source for transmitting data, a large core multimode fiber optic cable, and a lens. The fiber optic cable has a core with a diameter greater than 50 microns. The lens has a focal length  $f$  and is placed a distance  $f$  from an exposed end of the fiber optic cable. A light signal from the lens has a diameter approximately equal to the diameter of the core to reduce higher order modes excited in the fiber optic cable thereby increasing a length/data rate product. The method increases a length/data rate product of a large core multimode fiber optic cable. Light signals are launched to the fiber optic cable to promote lower order modes and reduce higher order modes. Higher order modes are attenuated as the light signals travel through the fiber optic cable.